

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
30 November 2000 (30.11.2000)

PCT

(10) International Publication Number
WO 00/72224 A1

(51) International Patent Classification⁷: G06F 19/00

(21) International Application Number: PCT/US00/09819

(22) International Filing Date: 24 May 2000 (24.05.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/135,487 24 May 1999 (24.05.1999) US

(71) Applicant (for all designated States except US): POTOMAC PHOTONICS, INC. [US/US]; 4445 Nicole Drive, Lanham, MD 20706 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): DUIGNAN, Michael, T. [US/US]; 1520 R Street, N.W., Washington, DC 20009 (US).

(74) Agent: ROSENBERG, Morton, J.; Rosenberg, Klein & Lee, Suite 105, 3444 Ellicott Center Drive, Ellicott City, MD 21043 (US).

(81) Designated States (national): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

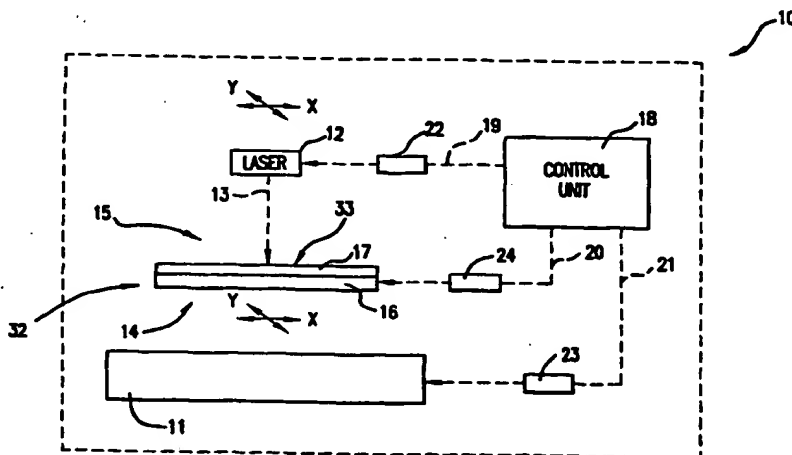
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MATERIAL DELIVERY SYSTEM FOR MINIATURE STRUCTURE FABRICATION



(57) Abstract: A material delivery system (10) is provided for miniature structures fabrication which has a substrate (11), a material carrier (15) having a deposition layer (16), and a laser beam (12) directed towards the material carrier element (15). A control unit (18) is operatively coupled to the substrate (11), the material carrier element (15) and laser beam (12) for exposing respective areas of the deposition layer (16) to the laser beam (12) in a patterned manner so that the depositable material (16) of the deposition layer (16) is transferred to the substrate (11) surface for deposition on its surface. The system (10) operates in either an additive mode of operation, or a subtractive mode of operation so that a workpiece (11) does not have to be removed from the tool when change of modes of operation takes place.

5

10

15